



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,278	01/23/2002	Tao Chen	000457	8553

23696 7590 03/27/2006

QUALCOMM, INC
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER

YUN, EUGENE

ART UNIT PAPER NUMBER

2618

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/056,278	CHEN ET AL.	
	Examiner	Art Unit	
	Eugene Yun	2682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 6-8, 19, 20, 22, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory (US 6,335,933) in view of Campana, Jr. (US 5,446,759).

Referring to Claim 1, Mallory teaches a method for selectively combining a plurality of received transmissions from respective signal sources (see col. 2, lines 62-67) to recover a message comprised of a plurality of frames, the method comprising:

Processing each of the plurality of transmissions separately to receive the message (see fig. 10 where the block diagram represents one processed transmission and the process repeats causing a plurality of processed transmissions. Also see fig. 13 where resent frames, such as frames 3 and 4 show a plurality of processed transmissions); and

If the message cannot be recovered error-free from a single received transmission,

Determining erased frames in a message recovered from a first received transmission (see col. 3, lines 1-5 and fig. 13 where frames 3 and 4 represent the erased frames),

Determining good frames recovered from remaining ones of the plurality of received transmissions (see col. 2, lines 64-67 and fig. 13 where frames 1, 2, 5, and 6 in the "MULTIPLE LOST FRAMES" diagram represent the good frames),

Forming at least one combined message, wherein each combined message includes a particular combination of good frames substituting for the erased frames (see col. 3, lines 5-10 and fig. 13 where frames 3 and 4 get replaced to form a combined message with all good frames), and

Checking each combined message to determine whether it is good or erased (see col. 3, lines 5-10 and fig. 13 where after all erased frames get replaced with good frames, the message is determined to be good).

Mallory does not teach combining a plurality of received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the received transmissions from the plurality of respective signal sources separately to recover the message. Campana teaches combining a plurality of received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the received transmissions from the plurality of respective signal sources separately to recover the message (see col. 59, lines 21-63 and multiple sources 124 in fig. 11 and the process of replacing error frames in fig. 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Campana to said device of Mallory in order to increase the data transmission rate while lowering the error rate.

Claims 19, 26, and 27 have similar limitations as Claim 1.

Referring to Claim 3, Mallory also teaches checking each frame in the message recovered from the first received transmission and marking each frame failing the checking as an erased frame (see fig. 13).

Referring to Claim 6, Mallory also teaches identifying each erased frame in the message recovered from the first received transmission, identifying a good frame from one of the plurality of received transmissions corresponding to each erased frame and substituting each erased frame with the corresponding good frame to form the combined message (see figs. 12 and 13).

Referring to Claim 7, Mallory also teaches the good frame corresponding to each erased frame identified based on a frame number associated with each frame (see fig. 13).

Referring to Claim 8, Mallory also teaches identifying a plurality of combinations of good frames for the erased frames in the message recovered from the first received transmission and substituting each combination of good frames for the erased frames to form a respective combined message (see fig. 13).

Referring to Claim 20, Mallory also teaches a frame buffer to store good frames recovered from the plurality of symbol streams (see col. 2, lines 66-67).

Referring to Claim 22, Mallory also teaches a symbol buffer to store symbols corresponding to each erased frame in the message recovered from the first symbol system (see col. 2, lines 66-67).

3. Claims 2, 9-12, 14-17, 21, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory and Campana in view of Keskitalo (US 5,920,553).

Referring to Claim 2, the combination of Campana and Mallory does not teach the first received transmission having the highest signal quality among the plurality of transmissions. Keskitalo also teaches the first received transmission having the highest signal quality among the plurality of transmissions (see col. 5, lines 41-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Keskitalo to said device of Mallory in order to ensure the complete message transmission in shorter time.

Referring to Claim 9 and 21, Keskitalo also teaches combining symbols for two or more frames from two or more received transmissions corresponding to the erased frame and decoding the combined symbols to derive a good frame for the erased frame (see col. 5, lines 45-53).

Referring to Claim 10, Keskitalo also teaches ranking the plurality of received transmissions and wherein symbols for frames corresponding to the erased frames are combined in a particular order determined based on the ranking of the plurality of received transmissions (see col. 5, lines 41-44).

Referring to Claim 11, Keskitalo also teaches the plurality of received transmissions ranked based on signal quality (see col. 5, lines 41-44).

Referring to Claim 12, Kesktialo also teaches weighting symbols for each of the two or more frames corresponding to the erased frame based on a respective weight determined based on the signal quality of the two or more transmissions from which the

Art Unit: 2682

two or more frames are recovered and wherein the weighted symbols are combined (see col. 5, lines 41-44).

Referring to Claim 14 and 25, Keskitalo also teaches each received transmission a forward link signal from a respective base station in a CDMA system (see ABSTRACT).

Referring to Claim 15, Keskitalo also teaches the plurality of received transmissions are approximately synchronous (see col. 4, lines 66-67 and col. 5, lines 1-2).

Referring to Claim 16, Keskitalo also teaches the plurality of received transmissions are approximately asynchronous (see col. 4, lines 66-67 and col. 5, lines 1-2).

Referring to Claim 17 and 24, Keskitalo also teaches the message to be recovered error-free as a page message (see col. 3, lines 49-51).

4. Claims 4, 5, 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mallory and Campana in view of Alanara (US 6,286,122).

Referring to Claim 18, Mallory teaches a method for selectively combining a plurality of non-synchronous forward link received transmissions from respective signal sources (see col. 2, lines 62-67) to recover a page message comprised of a plurality of frames, the method comprising:

Processing each of the plurality of non-synchronous forward link received transmissions separately to recover the page message (see fig. 10 where the block

Art Unit: 2682

diagram represents one processed transmission and the process repeats causing a plurality of processed transmissions. Also see fig. 13 where resent frames, such as frames 3 and 4 show a plurality of processed transmissions); and

If the page message cannot be recovered error-free from a single received transmission,

Determining erased frames in a message recovered from a first non-synchronous forward link received transmission (see col. 3, lines 1-5 and fig. 13 where frames 3 and 4 represent the erased frames),

Determining good frames recovered from remaining ones of the plurality of non-synchronous forward link received transmissions (see col. 2, lines 64-67 and fig. 13 where frames 1, 2, 5, and 6 in the "MULTIPLE LOST FRAMES" diagram represent the good frames),

Forming a combined message, by substituting each erased frame with a corresponding good frame (see col. 3, lines 5-10 and fig. 13 where frames 3 and 4 get replaced to form a combined message with all good frames), and

Checking each combined message to determine whether it is good or erased (see col. 3, lines 5-10 and fig. 13 where after all erased frames get replaced with good frames, the message is determined to be good).

Mallory does not teach combining a plurality of non-synchronous forward link received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the non-synchronous forward link received transmissions from the plurality of respective signal sources

Art Unit: 2682

separately to recover the message. Campana teaches combining a plurality of non-synchronous forward link received transmissions from a plurality of respective signal sources to recover a message comprised of a plurality of frames and processing the non-synchronous forward link received transmissions from the plurality of respective signal sources separately to recover the message (see col. 59, lines 21-63 and multiple sources 124 in fig. 11 and the process of replacing error frames in fig. 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Campana to said device of Mallory in order to increase the data transmission rate while lowering the error rate.

The combination of Campana and Mallory does not teach each frame and each message checked based on a set of cycle redundancy check bits generated. Alanara teaches each frame and each message checked based on a set of cycle redundancy check bits generated (see ABSTRACT). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of Alanara to said device of Mallory in order to better prevent fading while receiving signals to form a message.

Referring to Claims 4, 5, and 23, the combination of Campana and Mallory does not teach each frame and each message checked based on a set of cycle redundancy check bits generated. Alanara teaches each frame and each message checked based on a set of cycle redundancy check bits generated (see ABSTRACT and fig. 3D where CRC bits are included to each frame). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the teachings of

Art Unit: 2682

Alanara to said device of Mallory in order to better prevent fading while receiving signals to form a message.

Response to Arguments

5. Applicant's arguments filed 12/29/2005 have been fully considered but they are not persuasive.

After careful consideration of the cited references and the applicant's arguments, the examiner still believes that the combination of the Mallory and Campana references are sufficient to read on the independent claims of note, mainly claims 1, 19, 26, and 27. The applicant argues that the Campana reference is insufficient to be combined with the Mallory reference because the Campana reference teaches that the "messages are partitioned, interwoven and doubly sent out of a single signal source" in addition to stating that the "segmented duplicated and interleaved, each of the duplicated segment is separated by a time delay within the same message and then transmitted out of the same signal source". While the examiner may agree with the above assessment of the Campana reference, the examiner would also like to point out that nowhere in the claims does it state where the message is originated. In addition, the claims do not state that the transmissions from the plurality of signal sources must be made or received simultaneously. Therefore, the analog transmitters 124 (fig. 11) in the Campana reference can indeed be defined as a plurality of signal sources as there is no indication in the claims that detail the term "signal sources" in order to teach over the analog transmitters in the Campana reference. The examiner believes that all that needs to be

shown in the Campana reference is error correction from a message transmitted by more than one transmitter.

For the above reasons, the examiner stands by his rejection.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Yun whose telephone number is (571) 272-7860. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571)272-4177. The fax phone

Art Unit: 2682

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Eugene Yun
Examiner
Art Unit 2682

EY



Matthew D Anderson
SPE 2618